NEUROSCIENCE

An International Journal under the editorial direction of IBRO

Volume 65, 1995

TITLE SECTION
LIST OF CONTENTS
AND AUTHOR INDEX

PERGAMON

NEUROSCIENCE

Chief Editors

P. G. KOSTYUK: *Department of General Physiology, A. A. Bogomoletz Institute of Physiology, Academy of Sciences, 4 Bogomoletz Street, Kiev 24, 252601 GSP, Ukraine*

R. LLINÁS: *Department of Physiology and Biophysics, New York University School of Medicine, 550 First Avenue, New York 10016, U.S.A.*

A. D. SMITH: *Department of Pharmacology, University of Oxford, Mansfield Road, Oxford OX1 3QT, U.K.*

Editorial Board

G. ASTON-JONES (*Philadelphia, PA*)
A. BJÖRKLUND (*Lund*)
A. BLIGHT (*Chapel Hill, NA*)
T. V. P. BLISS (*London*)
J. P. BOLAM (*Oxford*)
A. G. BROWN (*Edinburgh*)
M. C. BROWN (*Oxford*)
J. BUREŠ (*Prague*)
G. BUZSÁKI (*Newark, NJ*)
A. L. BYSOV (*Moscow*)
D. W. CHOI (*St Louis, MO*)
A. CONSTANTI (*London*)
M. COSTA (*Adelaide*)
J. T. COYLE (*Belmont, MA*)
W. CRILL (*Seattle, WA*)
A. C. CUELLO (*Montreal*)
A. C. DOLPHIN (*London*)
F. E. DUDEK (*Fort Collins, CO*)
A. W. DUGGAN (*Edinburgh*)
S. B. DUNNETT (*Cambridge*)
D. EDGAR (*Liverpool*)
M. M. ESIRI (*Oxford*)
R. H. EVANS (*Bristol*)
D. S. FABER (*Philadelphia, PA*)
V. V. FANARDJIAN (*Yerevan*)
R. L. M. FAULL (*Auckland*)
R. FISCHER-COLBRIE (*Innsbruck*)
T. F. FREUND (*Budapest*)
G. GABELLA (*London*)
F. H. GAGE (*La Jolla, CA*)
J. GARTHWAITE (*Beckenham*)
C. R. GERFEN (*Bethesda, MD*)
H. M. GERSCHENFELD (*Paris*)
J. GLOWINSKI (*Paris*)
J. A. GRAY (*London*)
A. M. GRAYBIEL (*Cambridge, MA*)
H. J. GROENEWEGEN (*Amsterdam*)
R. W. GUILLERY (*Oxford*)
M. HAMON (*Paris*)
F. F. HEFTI (*South San Francisco, CA*)
L. HEIMER (*Charlottesville, VA*)
Z. HENDERSON (*Leeds*)
J. HERBERT (*Cambridge*)
M. HERKENHAM (*Bethesda, MD*)
D. E. HILLMAN (*New York, NY*)
T. HÖKFELT (*Stockholm*)
P. HOLZER (*Graz*)
O. HORNYKIEWICZ (*Vienna*)
J. HOUNSGAARD (*Copenhagen*)
S. P. HUNT (*Cambridge*)
H. JAHNSEN (*Copenhagen*)
B. E. JONES (*Montreal*)
E. G. JONES (*Irvine, CA*)
G. JU (*Xi'an*)
J. S. KELLY (*Edinburgh*)
B. I. KHODOROV (*Moscow*)
S. T. KITAI (*Memphis, TN*)
C. KÖHLER (*Basel*)
T. KOSAKA (*Fukuoka*)
O. A. KRISHTAL (*Kiev*)
S. N. LAWSON (*Bristol*)
J. D. LEVINE (*San Francisco, CA*)
C. A. MAGGI (*Florence*)
C. A. MARSDEN (*Nottingham*)
M. R. MATTHEWS (*Oxford*)
A. I. MATUS (*Basle*)
J. F. MORRIS (*Oxford*)
É. MUGNAINI (*Storrs, CT*)
T. ONO (*Toyama*)
F. ORREGO (*Santiago*)
J. M. PALACIOS (*Barcelona*)
S. L. PALAY (*Concord, MA*)
V. H. PERRY (*Oxford*)
J. M. POLAK (*London*)
P. RAKIC (*New Haven, CA*)
H. J. RALSTON (*San Francisco, CA*)
S. J. REDMAN (*Canberra*)
T. S. REESE (*Bethesda, MD*)
F. REINOSO-SUÁREZ (*Madrid*)
L. P. RENAUD (*Ottawa*)
M. RÉTHELYI (*Budapest*)
P. J. ROBERTS (*Bristol*)
H. A. ROBERTSON (*Halifax, N.S.*)
R. SCHMIDT-KASTNER (*Ottowa*)
S. M. SHERMAN (*Stony Brook, NY*)
M. L. SHIK (*Moscow*)
S. SNYDER (*Baltimore, MD*)
M. V. SOFRONIEW (*Cambridge*)
P. SOMOGYI (*Oxford*)
C. SOTELO (*Paris*)
K. STARKE (*Freiburg*)
M. S. STARR (*London*)
M. STERIADE (*Québec*)
L. STJÄRNE (*Stockholm*)
K. SUZUKI (*Chapel Hill, NC*)
D. T. THEODOSIS (*Bordeaux*)
A. M. THOMSON (*London*)
K. UNSICKER (*Heidelberg*)
S. R. VINCENT (*Vancouver*)
J. VOOGD (*Rotterdam*)
L. VYKLICKY (*Prague*)
K. D. WALTON (*New York, NY*)
X. S. T. WAN (*Beijing*)
K. WICTORIN (*Lund*)
W. D. WILLIS (*Galveston, TX*)
H. WINKLER (*Innsbruck*)
D. J. WOODWARD (*Winston-Salem, NC*)
D. S. ZAHM (*St Louis, MO*)
H. ZIMMERMANN (*Frankfurt*)
C. ZUCKER (*Boston, MA*)

IBRO Publications Committee

Chairman, A. D. SMITH; C. BLAKEMORE, R. LLINÁS, D. G. R. OTTOSON, D. P. PURPURA, P. G. STRATA.

Production Editors: M. DAVIES, J. M. WALL. *Editorial Assistants*: S. J. RUSSELL (U.K.), P. BLAIKIE (U.S.).

Published 24 *per annum, semi-monthly* (*six volumes*, 1995)

Publishing, Subscription and Advertising Offices:

The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. [*Tel*: (01865) 843000; *Fax*: (01865) 843010]

Subscription Rates

Annual institutional subscription rate (1995) *North, Central and South America, U.S.*$3487; *Rest of World*, £2340. *Associated Personal Subscription Rates are available on request for those whose institutions are library subscribers. Sterling prices exclude VAT. Non-VAT registered customers in the European Community will be charged the appropriate VAT in addition to the price listed. Prices include postage and insurance and are subject to change without notice. Members of the International Brain Research Organization may order personal subscriptions at a concessional rate and details of these rates are available on request. Airmail Subscription extra. Subscription enquiries from customers in North America should be sent to: Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A., and for the remainder of the world to: Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, U.K. Tel*: (01865) 843000; *Fax*: (01865) 843010.

Disclaimer. Whilst every effort is made by the Publishers and Editorial Board to see that no inaccurate or misleading data, opinion or statement appear in this Journal, they wish to make it clear that the data and opinions appearing in the articles and advertisements herein are the sole responsibility of the contributor or advertiser concerned. Accordingly, the Publishers, the Editorial Board and Editors and their respective employees, officers and agents accept no responsibility or liability whatsoever for the consequences of any such inaccurate or misleading data, opinion or statement.

Second class postage paid at Newark, NJ, and additional Mailing Offices. Postmaster send address corrections to *Neuroscience*, c/o Elsevier Science Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

Copyright © 1995 IBRO

Front cover illustration: Section of a nerve in the spinal cord of the ox, reproduced by permission of the Bodleian Library, Oxford from Antoni van Leeuwenhoek, *Epistolae physiologicae super compluribus naturae arcanis*, Figure 2 facing page 312. A. Beman, Delft, 1719.

LIST OF CONTENTS

VOLUME 65 NUMBER 1 — 1995

C. D. Dunigan and **A. E. Shamoo**	Li^+ stimulates ATP-regulated dopamine uptake in PC12 cells	1
RESEARCH PAPERS		
T. E. Salt and **S. A. Eaton**	Distinct presynaptic metabotropic receptors for L-AP4 and CCG1 on GABAergic terminals: pharmacological evidence using novel α-methyl derivative mGluR antagonists, MAP4 and MCCG, in the rat thalamus *in vivo*	5
N. Mahy, G. Bendahan, M. Ll. Boatell, B. Bjelke, B. Tinner, L. Olson and **K. Fuxe**	Differential brain area vulnerability to long-term subcortical excitotoxic lesions	15
P. Gass, P. Prior and **M. Kiessling**	Correlation between seizure intensity and stress protein expression after limbic epilepsy in the rat brain	27
S. W. Schoen and **G. W. Kreutzberg**	Evidence that 5′-nucleotidase is associated with malleable synapses—an enzyme cytochemical investigation of the olfactory bulb of adult rats	37
D. J. S. Sirinathsinghji, M. Rigby, R. P. Heavens, D. Smith, J. M. Fernandez, R. Schuligoi and **R. G. Hill**	Increased messenger RNA expression of the 695 and 751 amino acid isoforms of the β-amyloid protein precursor in the thalamus of 17-year-old cynomolgus (*Macaca fascicularis*) monkeys	51
M. Matsumura, L. Tremblay, H. Richard and **M. Filion**	Activity of pallidal neurons in the monkey during dyskinesia induced by injection of bicuculline in the external pallidum	59
J. S. Brog and **D. S. Zahm**	Morphology and Fos immunoreactivity reveal two subpopulations of striatal neurotensin neurons following acute 6-hydroxydopamine lesions and reserpine administration	71
D. A. McRitchie and **G. M. Halliday**	Calbindin D_{28k}-containing neurons are restricted to the medial substantia nigra in humans	87
C. J. Lebrun, A. Blume, T. Herdegen, K. Seifert, R. Bravo and **T. Unger**	Angiotensin II induces a complex activation of transcription factors in the rat brain: expression of Fos, Jun and Krox proteins	93
B. Gao, J.-P. Hornung and **J.-M. Fritschy**	Identification of distinct $GABA_A$-receptor subtypes in cholinergic and parvalbumin-positive neurons of the rat and marmoset medial septum–diagonal band complex	101
P.-H. Luppi, G. Aston-Jones, H. Akaoka, G. Chouvet and **M. Jouvet**	Afferent projections to the rat locus coeruleus demonstrated by retrograde and anterograde tracing with cholera-toxin B subunit and *Phaseolus vulgaris* leucoagglutinin	119
P. R. Wentzel, C. I. De Zeeuw, J. C. Holstege and **N. M. Gerrits**	Inhibitory synaptic inputs to the oculomotor nucleus from vestibulo-ocular-reflex-related nuclei in the rabbit	161
A. A. Aarnisalo and **P. Panula**	Neuropeptide FF-containing efferent projections from the medial hypothalamus of rat: a *Phaseolus vulgaris* leucoagglutinin study	175
H. M. Cousins, F. R. Edwards and **G. D. S. Hirst**	Neuronally released and applied acetylcholine on the longitudinal muscle of the guinea-pig ileum	193

J. M. A. Laird, G. S. Mason, K. A. Thomas, R. J. Hargreaves and **R. G. Hill**	Acidic fibroblast growth factor stimulates motor and sensory axon regeneration after sciatic nerve crush in the rat	209
Z.-Z. Wang, L. J. Stensaas, B. G. Dinger and **S. J. Fidone**	Nitric oxide mediates chemoreceptor inhibition in the cat carotid body	217
N. J. Dun, S. L. Dun, T. Chiba and **U. Förstermann**	Nitric oxide synthase-immunoreactive vagal afferent fibers in rat superior cervical ganglia	231
O. Honmou and **W. Young**	Norepinephrine modulates excitability of neonatal rat optic nerves through calcium-mediated mechanisms	241
A. Zagon, M. G. Terenzi and **M. H. T. Roberts**	Direct projections from the anterior pretectal nucleus to the ventral medulla oblongata in rats	253
G. M. Pitcher, K. Yashpal, T. J. Coderre and **J. L. Henry**	Mechanisms underlying antinociception provoked by heterosegmental noxious stimulation in the rat tail-flick test	273
E. Kinnman and **J. D. Levine**	Involvement of the sympathetic postganglionic neuron in capsaicin-induced secondary hyperalgesia in the rat	283
J. Frisén, A. Hægerstrand, M. Risling, K. Fried, C. B. Johansson, H. Hammarberg, R. Elde, T. Hökfelt and **S. Cullheim**	Spinal axons in central nervous system scar tissue are closely related to laminin-immunoreactive astrocytes	293
J. Herreros, J. Blasi, M. Arribas and **J. Marsal**	Tetanus toxin mechanism of action in *Torpedo* electromotor system: a study on different steps in the intoxication process	305

VOLUME 65 NUMBER 2 1995

R. F. Hevner, S. Liu and **M. T. T. Wong-Riley**	A metabolic map of cytochrome oxidase in the rat brain: histochemical, densitometric and biochemical studies	313
I. Jeske, D. J. Reis and **T. A. Milner**	Neurons in the barosensory area of the caudal ventrolateral medulla project monosynaptically on to sympathoexcitatory bulbospinal neurons in the rostral ventrolateral medulla	343
Z. J. Gieroba, J. P. Messenger and **W. W. Blessing**	Abdominal vagal stimulation excites bulbospinal barosensitive neurons in the rostral ventrolateral medulla	355
C. C. H. Yang, J. Y. H. Chan and **S. H. H. Chan**	Excitatory innervation of caudal hypoglossal nucleus from nucleus reticularis gigantocellularis in the rat	365
C. Baunez, A. Nieoullon and **M. Amalric**	Dopamine and complex sensorimotor integration: further studies in a conditioned motor task in the rat	375
M. Cador, Y. Bjijou and **L. Stinus**	Evidence of a complete independence of the neurobiological substrates for the induction and expression of behavioral sensitization to amphetamine	385
Q. Huang, D. Zhou, E. Sapp, H. Aizawa, P. Ge, E. D. Bird, J.-P. Vonsattel and **M. Difiglia**	Quinolinic acid-induced increases in calbindin D_{28k} immunoreactivity in rat striatal neurons *in vivo* and *in vitro* mimic the pattern seen in Huntington's disease	397
M. G. Giovannini, F. Camilli, A. Mundula, L. Bianchi, M. A. Colivicchi and **G. Pepeu**	Differential regulation by *N*-methyl-D-aspartate and non-*N*-methyl-D-aspartate receptors of acetylcholine release from the rat striatum *in vivo*	409

S. N. Haber and **W. Lu**	Distribution of preproenkephalin messenger RNA in the basal ganglia and limbic-associated regions of the monkey telencephalon	417
B. Lannes, V. Bernard, B. Bloch and **G. Micheletti**	Chronic treatment with dizocilpine maleate increases the number of striatal neurons expressing the D_2 receptor gene	431
M. S. Lidow	D_1- and D_2 dopaminergic receptors in the developing cerebral cortex of macaque monkey: a film autoradiographic study	439
D. T. Yew, C. B. Luo, W. Z. Shen, P. H. Chow, D. R. Zheng and **M. C. Yu**	Tyrosine hydroxylase- and dopamine-β-hydroxylase-positive neurons and fibres in the developing human cerebellum—an immunohistochemical study	453
J. J. Waite, A. D. Chen, M. L. Wardlow, R. G. Wiley, D. A. Lappi and **L. J. Thal**	192 Immunoglobulin G–saporin produces graded behavioral and biochemical changes accompanying the loss of cholinergic neurons of the basal forebrain and cerebellar Purkinje cells	463
M. Diversé-Pierluissi and **K. Dunlap**	Interaction of convergent pathways that inhibit N-type calcium currents in sensory neurons	477
J. C. Hunter, V. L. Woodburn, C. Durieux, E. K. E. Pettersson, J. A. Poat and **J. Hughes**	c-*fos* antisense oligodeoxynucleotide increases formalin-induced nociception and regulates preprodynorphin expression	485
K. Matsumura, Yu. Watanabe, H. Onoe and **Y. Watanabe**	Prostacyclin receptor in the brain and central terminals of the primary sensory neurons: an autoradiographic study using a stable prostacyclin analogue [^{3}H]iloprost	493
K. Ren and **M. A. Ruda**	Nitric oxide synthase-containing neurons in sensory ganglia of the rat are susceptible to capsaicin-induced cytotoxicity	505
T.-C. Wen, S. Matsuda, H. Yoshimura, J. Aburaya, F. Kushihata and **M. Sakanaka**	Protective effect of basic fibroblast growth factor–heparin and neurotoxic effect of platelet factor 4 on ischemic neuronal loss and learning disability in gerbils	513
M. Buttini and **H. Boddeke**	Peripheral lipopolysaccharide stimulation induces interleukin-1β messenger RNA in rat brain microglial cells	523
B. Mitrovic, L. J. Ignarro, H. V. Vinters, M.-A. Akers, I. Schmid, C. Uittenbogaart and **J. E. Merrill**	Nitric oxide induces necrotic but not apoptotic cell death in oligodendrocytes	531
A. L. Curtis, L. A. Pavcovich, D. E. Grigoriadis and **R. J. Valentino**	Previous stress alters corticotropin-releasing factor neurotransmission in the locus coeruleus	541
A. Beaudet, D. Greenspun, J. Raelson and **G. S. Tannenbaum**	Patterns of expression of SSTR1 and SSTR2 somatostatin receptor subtypes in the hypothalamus of the adult rat: relationship to neuroendocrine function	551
S. D. Ginsberg, D. L. Price, C. D. Blackstone, R. L. Huganir and **L. J. Martin**	The AMPA glutamate receptor Glur3 is enriched in oxytocinergic magnocellular neurons and is localized at synapses	563
C. Williams, P. Azzopardi and **A. Cowey**	Nasal and temporal retinal ganglion cells projecting to the midbrain: implications for "blindsight"	577
J. Grosse, A. S. I. Loudon and **M. H. Hastings**	Behavioural and cellular responses to light of the circadian system of *Tau* mutant and wild-type Syrian hamsters	587

M. Frödin, J. Hannibal, B. S. Wulff, S. Gammeltoft and **J. Fahrenkrug**	Neuronal localization of pituitary adenylate cyclase-activating polypeptide 38 in the adrenal medulla and growth-inhibitory effect on chromaffin cells	599
M. A. L. Nicolelis, J. K. Chapin and **R. C. S. Lin**	Development of direct GABAergic projections from the zona incerta to the somatosensory cortex of the rat	609

VOLUME 65 NUMBER 3 1995

T. Arendt, M. K. Brückner, S. Pagliusi and **T. Krell**	Degeneration of rat cholinergic basal forebrain neurons and reactive changes in nerve growth factor expression after chronic neurotoxic injury—I. Degeneration and plastic response of basal forebrain neurons	633
T. Arendt, M. K. Brückner, T. Krell, S. Pagliusi, L. Kruska and **R. Heumann**	Degeneration of rat cholinergic basal forebrain neurons and reactive changes in nerve growth factor expression after chronic neurotoxic injury—II. Reactive expression of the nerve growth factor gene in astrocytes	647
N. Lindefors, E. Brodin and **M. Metsis**	Spatiotemporal selective effects on brain-derived neurotrophic factor and *trk*B messenger RNA in rat hippocampus by electroconvulsive shock	661
S. Shehab, M. Simkins, P. Dean and **P. Redgrave**	The dorsal midbrain anticonvulsant zone—I. Effects of locally administered excitatory amino acids or bicuculline on maximal electroshock seizures	671
S. Shehab, P. Dean and **P. Redgrave**	The dorsal midbrain anticonvulsant zone—II. Efferent connections revealed by the anterograde transport of wheatgerm agglutinin–horseradish peroxidase from injections centred on the intercollicular area in the rat	681
S. Shehab, M. Simkins, P. Dean and **P. Redgrave**	The dorsal midbrain anticonvulsant zone—III. Effects of efferent pathway transections on suppression of electroshock seizures and defence-like reactions produced by local injections of bicuculline	697
K. K. L. Yung, J. P. Bolam, A. D. Smith, S. M. Hersch, B. J. Ciliax and **A. I. Levey**	Immunocytochemical localization of D_1 and D_2 dopamine receptors in the basal ganglia of the rat: light and electron microscopy	709
J. Diaz, D. Lévesque, C. H. Lammers, N. Griffon, M.-P. Martres, J.-C. Schwartz and **P. Sokoloff**	Phenotypical characterization of neurons expressing the dopamine D_3 receptor in the rat brain	731
N. Guo, M. A. Klitenick, C.-S. Tham and **H. C. Fibiger**	Receptor mechanisms mediating clozapine-induced *c-fos* expression in the forebrain	747
R. M. Sullivan and **H. Szechtman**	Asymmetrical influence of mesocortical dopamine depletion on stress ulcer development and subcortical dopamine systems in rats: implications for psychopathology	757
D. Wheeler, M. G. Boutelle and **M. Fillenz**	The role of *N*-methyl-D-aspartate receptors in the regulation of physiologically released dopamine	767
F. W. Bach and **T. L. Yaksh**	Release of β-endorphin immunoreactivity from brain by activation of a hypothalamic *N*-methyl-D-aspartate receptor	775
M. B. Harrison, M. D. Shumate and **E. W. Lothman**	Opioid peptide expression in models of chronic temporal lobe epilepsy	785

L. Trachsel, H. C. Heller and **J. D. Miller**	Nicotine phase-advances the circadian neuronal activity rhythm in rat suprachiasmatic nuclei explants	797
A. P. D'Costa, X. Xu, R. L. Ingram and **W. E. Sonntag**	Insulin-like growth factor-1 stimulation of protein synthesis is attenuated in cerebral cortex of aging rats	805
A.-M. Van Dam, J. Bauer, F. J. H. Tilders and **F. Berkenbosch**	Endotoxin-induced appearance of immunoreactive interleukin-1β in ramified microglia in rat brain: a light and electron microscopic study	815
E. C. Mallard, H. J. Waldvogel, C. E. Williams, R. L. M. Faull and **P. D. Gluckman**	Repeated asphyxia causes loss of striatal projection neurons in the fetal sheep brain	827
S. C. Mendelson, C. F. Morrison, J. McAllister, J. M. Paterson, S. P. Dobson, P. K. Mulderry and **J. P. Quinn**	Repression of preprotachykinin-A promoter activity is mediated by a proximal promoter element	837
A. W. Duggan, R. C. Riley, M. A. Mark, S. J. A. MacMillan and **H.-G. Schaible**	Afferent volley patterns and the spinal release of immunoreactive substance P in the dorsal horn of the anaesthetized spinal cat	849
E. A. Molokanova and **Z. A. Tamarova**	The effects of dopamine and serotonin on rat dorsal root ganglion neurons: an intracellular study	859
B. Bagdan and **Q. J. Pittman**	Responses of electrophysiologically identified rat paraventricular neurons to cholecystokinin and other stimuli	869
W. Li, P. A. Y. Ochalski, S. Brimijoin, L. M. Jordan and **J. I. Nagy**	C-terminals on motoneurons: electron microscope localization of cholinergic markers in adult rats and antibody-induced depletion in neonates	879
S. Joshi, M. A. LeVatte, G. A. Dekaban and **L. C. Weaver**	Identification of spinal interneurons antecedent to adrenal sympathetic preganglionic neurons using transsynaptic transport of herpes simplex virus type 1	893
S. Mochida, H. Saisu, H. Kobayashi and **T. Abe**	Impairment of syntaxin by botulinum neurotoxin C_1 or antibodies inhibits acetylcholine release but not Ca^{2+} channel activity	905
D. A. Moshkov and **I. M. Santalova**	Distribution of calcium pyroantimonate precipitates in *Xenotoca* Mauthner cells at normal and increased functional activity	917

VOLUME 65 NUMBER 4 1995

H. Sauer, V. Wong and **A. Björklund**	Brain-derived neurotrophic factor and neurotrophin-4/5 modify neurotransmitter-related gene expression in the 6-hydroxydopamine-lesioned rat striatum	927
J. Deuchars and **A. M. Thomson**	Single axon fast inhibitory postsynaptic potentials elicited by a sparsely spiny interneuron in rat neocortex	935
S. I. Said, H. I. Berisha and **H. Pakbaz**	*N*-methyl-D-aspartate receptors outside the central nervous system: activation causes acute lung injury that is mediated by nitric oxide synthesis and prevented by vasoactive intestinal peptide	943

RESEARCH PAPERS

A. Klishin, N. Lozovaya and **O. Krishtal**	A_1 adenosine receptors differentially regulate the *N*-methyl-D-aspartate and non-*N*-methyl-D-aspartate receptor-mediated components of hippocampal excitatory postsynaptic current in a Ca^{2+}/Mg^{2+}-dependent manner	947

E. J. Bradbury, T. R. Kershaw, R. M. Marchbanks and **J. D. Sinden**	Astrocyte transplants alleviate lesion induced memory deficits independently of cholinergic recovery	955
J. J. Wang, M. I. Chuah, D. T. W. Yew, P. C. Leung and **D. S. C. Tsang**	Effects of astrocyte implantation into the hemisected adult rat spinal cord	973
P. Pakzaban, T. W. Deacon, L. H. Burns, J. Dinsmore and **O. Isacson**	A novel mode of immunoprotection of neural xenotransplants: masking of donor major histocompatibility complex class I enhances transplant survival in the central nervous system	983
A. Lombardo, S. A. Rabacchi, F. Cremisi, T. Pizzorusso, M. C. Cenni, R. Possenti, G. Barsacchi and **L. Maffei**	A developmentally regulated nerve growth factor-induced gene, VGF, is expressed in geniculocortical afferents during synaptogenesis	997
K. Lorent, L. Overbergh, D. Moechars, B. De Strooper, F. Van Leuven and **H. Van den Berghe**	Expression in mouse embryos and in adult mouse brain of three members of the amyloid precursor protein family, of the alpha-2-macroglobulin receptor/low density lipoprotein receptor-related protein and of its ligands apolipoprotein E, lipoprotein lipase, alpha-2-macroglobulin and the 40,000 molecular weight receptor-associated protein	1009
C. Cadoni, A. Pinna, G. Russi, S. Consolo and **G. Di Chiara**	Role of vesicular dopamine in the *in vivo* stimulation of striatal dopamine transmission by amphetamine: evidence from microdialysis and Fos immunohistochemistry	1027
M. Jaber, M. Cador, B. Dumartin, E. Normand, L. Stinus and **B. Bloch**	Acute and chronic amphetamine treatments differently regulate neuropeptide messenger RNA levels and Fos immunoreactivity in rat striatal neurons	1041
C. Konradi and **S. Heckers**	Haloperidol-induced Fos expression in striatum is dependent upon transcription factor cyclic AMP response element binding protein	1051
M. J. M. Perry, S.-A. Mahoney and **L. W. Haynes**	Transglutaminase C in cerebellar granule neurons: regulation and localization of substrate cross-linking	1063
Z. Henderson	Expression of $GABA_A$ receptor subunit messenger RNA in non-cholinergic neurons of the rat basal forebrain	1077
J. Pérez, A. Vezzani, G. Civenni, P. Tutka, M. Rizzi, E. Schüpbach and **D. Hoyer**	Functional effects of D-Phe-c[Cys-Tyr-D-Trp-Lys-Val-Cys]-Trp-NH_2 and differential changes in somatostatin receptor messenger RNAs, binding sites and somatostatin release in kainic acid-treated rats	1087
P. S. Chard, D. Bleakman, J. R. Savidge and **R. J. Miller**	Capsaicin-induced neurotoxicity in cultured dorsal root ganglion neurons: involvement of calcium-activated proteases	1099
A. Shmigol, P. Kostyuk and **A. Verkhratsky**	Dual action of thapsigargin on calcium mobilization in sensory neurons: inhibition of Ca^{2+} uptake by caffeine-sensitive pools and blockade of plasmalemmal Ca^{2+} channels	1109
A. M. Shadiack, S. A. Vaccariello and **R. E. Zigmond**	Galanin expression in sympathetic ganglia after partial axotomy is highly localized to those neurons that are axotomized	1119
C. Matesz, A. Birinyi, D. S. Kothalawala and **G. Székely**	Investigation of the dendritic geometry of brain stem motoneurons with different functions using multivariant statistical techniques in the frog	1129

M. Jurzak, A. R. Müller and **R. Gerstberger** — Characterization of vasopressin receptors in cultured cells derived from the region of rat brain circumventricular organs 1145

AUTHOR INDEX

Aarnisalo A. A., 175
Abe T., 905
Aburaya J., 513
Aizawa H., 397
Akaoka H., 119
Akers M.-A., 531
Amalric M., 375
Arendt T., 633, 647
Arribas M., 305
Aston-Jones G., 119
Azzopardi P., 577

Bach F. W., 775
Bagdan B., 869
Barsacchi G., 997
Bauer J., 815
Baunez C., 375
Beaudet A., 549
Bendahan G., 15
Berisha H. I., 943
Berkenbosch F., 815
Bernard V., 431
Bianchi L., 409
Bird E. D., 397
Birinyi A., 1129
Bjelke B., 15
Bjijou Y., 385
Björklund A., 927
Blackstone C. D., 563
Blasi J., 305
Bleakman D., 1099
Blessing W. W., 355
Bloch B., 431, 1041
Blume A., 93
Boatell M. Ll., 15
Boddeke H., 523
Bolam J. P., 709
Boutelle M. G., 767
Bradbury E. J., 955
Bravo R., 93
Brimijoin S., 879
Brodin E., 661
Brog J. S., 71
Brückner M. K., 633, 647
Burns L. H., 983
Buttini M., 523

Cadoni C., 1027
Cador M., 385, 1041
Camilli F., 409
Cenni M. C., 997
Chan J. Y. H., 365
Chan S. H. H., 365
Chapin J. K., 609
Chard P. S., 1099
Chen A. D., 463
Chiba T., 231
Chouvet G., 119
Chow P. H., 453
Chuah M. I., 973
Ciliax B. J., 709
Civenni G., 1087
Coderre T. J., 273
Colivicchi M. A., 409
Consolo S., 1027
Cousins H. M., 193
Cowey A., 577
Cremisi F., 997
Cullheim S., 293
Curtis A. L., 541

D'Costa A. P., 805
De Strooper B., 1009
De Zeeuw C. I., 161
Deacon T. W., 983
Dean P., 671, 681, 697
Dekaban G. A., 893
Deuchars J., 935
Di Chiara G., 1027
Diaz J., 731
Difiglia M., 397
Dinger B. G., 217
Dinsmore J., 983
Diversé-Pierluissi M., 477
Dobson S. P., 837
Duggan A. W., 849
Dumartin B., 1041
Dun N. J., 231
Dun S. L., 231
Dunigan C. D., 1
Dunlap K., 477
Durieux C., 485

Eaton S. A., 5
Edwards F. R., 193
Elde R., 293

Fahrenkrug J., 599
Faull R. L. M., 827
Fernandez J. M., 51
Fibiger H. C., 747
Fidone S. J., 217
Filion M., 59
Fillenz M., 767
Förstermann U., 231
Fried K., 293
Frisén J., 293
Fritschy J.-M., 101
Frödin M., 599
Fuxe K., 15

Gammeltoft S., 599
Gao B., 101
Gass P., 27
Ge P., 397
Gerrits N. M., 161
Gerstberger R., 1145
Gieroba Z. J., 355
Ginsberg S. D., 563
Giovannini M. G., 409
Gluckman P. D., 827
Greenspun D., 549
Griffon N., 731
Grigoriadis D. E., 541
Grosse J., 587
Guo N., 747

Haber S. N., 417
Hægerstrand A., 293
Halliday G. M., 87
Hammarberg H., 293
Hannibal J., 599
Hargreaves R. J., 209
Harrison M. B., 785
Hastings M. H., 587
Haynes L. W., 1063
Heavens R. P., 51
Heckers S., 1051
Heller H. C., 797
Henderson Z., 1077
Henry J. L., 273
Herdegen T., 93
Herreros J., 305
Hersch S. M., 709
Heumann R., 647
Hevner R. F., 313
Hill R. G., 51, 209
Hirst G. D. S., 193
Hökfelt T., 293
Holstege J. C., 161
Honmou O., 241
Hornung J.-P., 101
Hoyer D., 1087
Huang Q., 397
Huganir R. L., 563
Hughes J., 485
Hunter J. C., 485

Ignarro L. J., 531
Ingram R. L., 805
Isacson O., 983

Jaber M., 1041
Jeske I., 343
Johansson C. B., 293
Jordan L. M., 879
Joshi S., 893
Jouvet M., 119
Jurzak M., 1145

Kershaw T. R., 955
Kiessling M., 27
Kinnman E., 283
Klishin A., 947
Klitenick M. A., 747
Kobayashi H., 905
Konradi C., 1051
Kostyuk P., 1109
Kothalawala D. S., 1129
Krell T., 633, 647
Kreutzberg G. W., 37
Krishtal O., 947
Kruska L., 647
Kushihata F., 513

Laird J. M. A., 209
Lammers C. H., 731
Lannes B., 431
Lappi D. A., 463
Lebrun C. J., 93
Leung P. C., 973
Levatte M. A., 893
Lévesque D., 731
Levey A. I., 709
Levine J. D., 283
Li W., 879
Lidow M. S., 439
Lin R. C. S., 609
Lindefors N., 661
Liu S., 313
Lombardo A., 997
Lorent K., 1009
Lothman E. W., 785
Loudon A. S. I., 587
Lozovaya N., 947
Lu W., 417

Luo C. B., 453
Luppi P.-H., 119

MacMillan S. J. A., 849
Maffei L., 997
Mahoney S.-A., 1063
Mahy N., 15
Mallard E. C., 827
Marchbanks R. M., 955
Mark M. A., 849
Marsal J., 305
Martin L. J., 563
Martres M.-P., 731
Mason G. S., 209
Matesz C., 1129
Matsuda S., 513
Matsumura K., 493
Matsumura M., 59
McAllister J., 837
McRitchie D. A., 87
Mendelson S. C., 837
Merrill J. E., 531
Messenger J. P., 355
Metsis M., 661
Micheletti G., 431
Miller J. D., 797
Miller R. J., 1099
Milner T. A., 343
Mitrovic B., 531
Mochida S., 905
Moechars D., 1009
Molokanova E. A., 859
Morrison C. F., 837
Moshkov D. A., 917
Mulderry P. K., 837
Müller A. R., 1145
Mundula A., 409

Nagy J. I., 879
Nicolelis M. A. L., 609
Nieoullon A., 375
Normand E., 1041

Ochalski P. A. Y., 879
Olson L., 15
Onoe H., 493
Overbergh L., 1009

Pagliusi S., 633, 647
Pakbaz H., 943
Pakzaban P., 983
Panula P., 175
Paterson J. M., 837
Pavcovich L. A., 541
Pepeu G., 409
Pérez J., 1087
Perry M. J. M., 1063
Pettersson E. K. E., 485
Pinna A., 1027
Pitcher G. M., 273
Pittman Q. J., 869
Pizzorusso T., 997
Poat J. A., 485
Possenti R., 997
Price D. L., 563
Prior P., 27

Quinn J. P., 837

Rabacchi S. A., 997
Raelson J., 549
Redgrave P., 671, 681, 697
Reis D. J., 343
Ren K., 505
Richard H., 59
Rigby M., 51
Riley R. C., 849
Risling M., 293
Rizzi M., 1087
Roberts M. H. T., 253
Ruda M. A., 505
Russi G., 1027

Said S. I., 943
Saisu H., 905
Sakanaka M., 513
Salt T. E., 5
Santalova I. M., 917
Sapp E., 397
Sauer H., 927
Savidge J. R., 1099
Schaible H.-G., 849
Schmid I., 531
Schoen S. W., 37
Schuligoi R., 51
Schüpbach E., 1087
Schwartz J.-C., 731
Seifert K., 93
Shadiack A. M., 1119
Shamoo A. E., 1
Shehab S., 671, 681, 697
Shen W. Z., 453
Shmigol A., 1109
Shumate M. D., 785
Simkins M., 671, 697
Sinden J. D., 955
Sirinathsinghji D. J. S., 51
Smith A. D., 709
Smith D., 51
Sokoloff P., 731
Sonntag W. E., 805
Stensaas L. J., 217
Stinus L., 385, 1041
Sullivan R. M., 757
Szechtman H., 757
Székely G., 1129

Tamarova Z. A., 859
Tannenbaum G. S., 549
Terenzi M. G., 253
Thal L. J., 463
Tham C.-S., 747
Thomas K. A., 209
Thomson A. M., 935
Tilders F. J. H., 815
Tinner B., 15
Trachsel L., 797
Tremblay L., 59
Tsang D. S. C., 973
Tutka P., 1087

Uittenbogaart C., 531
Unger T., 93

Vaccariello S. A., 1119
Valentino R. J., 541
Van Dam A.-M., 815
Van Leuven F., 1009
Van den Berghe H., 1009
Verkhratsky A., 1109
Vezzani A., 1087
Vinters H. V., 531
Vonsattel J.-P., 397

Waite J. J., 463
Waldvogel H. J., 827
Wang J. J., 973
Wang Z.-Z., 217
Wardlow M. L., 463
Watanabe Y., 493
Watanabe Yu., 493
Weaver L. C., 893
Wen T.-C., 513
Wentzel P. R., 161
Wheeler D., 767
Wiley R. G., 463
Williams C. E., 827
Williams C., 577
Wong V., 927
Wong-Riley M. T. T., 313
Woodburn V. L., 485
Wulff B. S., 599

Xu X., 805

Yaksh T. L., 775
Yang C. C. H., 365
Yashpal K., 273
Yew D. T. W., 973
Yew D. T., 453
Yoshimura H., 513
Young W., 241
Yu M. C., 453
Yung K. K. L., 709

Zagon A., 253
Zahm D. S., 71
Zheng D. R., 453
Zhou D., 397
Zigmond R. E., 1119

INTERNATIONAL BRAIN RESEARCH ORGANIZATION
World Federation of Neuroscientists
Incorporated as an independent international organization
Ottawa 1961

D. P. Purpura (U.S.A.)	*President*
M. Ito (Japan)	*Honorary President*
D. Ottoson (Sweden)	*Secretary-General*
B. A. Milner (Canada)	*Executive Secretary*
P. Strata (Italy)	*Treasurer*
P. Strata (Italy)	*Director, Workshop and Symposia Programme*
A. D. Smith (U.K.)	*Director, Publications Programme*
E. S. Vizi (Hungary)	*Director, Fellowships Programme*
C. Blakemore (U.K.)	*Managing Editor, IBRO News*

Secretary-General
Prof. D. Ottoson
51, Bd. de Montmorency
75016 Paris
France

Executive Secretary
Prof. B. A. Milner
Montreal Neurol. Inst.
3801, University St.
Montreal, Quebec,
Canada H3A 2B4

IBRO Secretariat
Executive Director
Ms Olga Popoff
51, Bd. de Montmorency
75016 Paris
France

IBRO NEUROSCIENCE CALENDAR

The International Brain Research Organization publishes a calendar of events in the neurosciences. It is hoped that the calendar, which is published in *IBRO News*, will help scientists in the field to plan ahead for the meetings they wish to attend. The aim of the calendar is to contain as many announcements as possible of forthcoming scientific meetings in the neurosciences throughout the whole world. It is in a form suitable for mounting on a wall.

IBRO invites organizers of meetings to send information on their meetings, together with a statement as to whether the date is definite or provisional, to: Office of *IBRO News*, University Laboratory of Physiology, Parks Road, Oxford OX1 3PT, U.K.

PRINTED IN ENGLAND BY BPC WHEATONS LTD, EXETER